## Occupational Employment and Wages for Selected Computer Occupations in Selected Metropolitan Areas in the Midwest — May 2017

Among 25 selected metropolitan areas in the Midwest, only Minneapolis-St. Paul-Bloomington had (mean) annual wages that were significantly higher than the respective national averages for any of the 4 selected computer occupations. Assistant Commissioner for Regional Operations Charlene Peiffer noted that, after testing for statistical significance, annual wages in Minneapolis-St. Paul-Bloomington for computer user support specialists and systems software developers, were both higher than their respective U.S. averages of $54,150 and $111,780. Wages for applications software developers and computer systems analysts in the Midwest did not exceed U.S. averages of $106,710 and $92,740, respectively, in any of the selected metropolitan areas. (See table A. For comprehensive definitions of the selected metropolitan areas in the Midwest, see Technical Note.)

**Table A. Average (mean) annual wages for selected computer occupations in the United States and selected metropolitan areas in the Midwest, May 2017**

| Area | Software developers, applications | Computer user support specialists | Computer systems analysts | Software developers, systems software |
|---|---|---|---|---|
| United States............................................ | $106,710 | $54,150 | $92,740 | $111,780 |
| Chicago-Naperville-Elgin, IL-IN-WI ............................ | 96,820* | 54,500 | 90,340* | 107,710* |
| Indianapolis-Carmel-Anderson, IN ............................. | 87,600* | 49,320* | 85,510* | 84,280* |
| Louisville/Jefferson County, KY-IN ............................ | 80,740* | 45,730* | 74,720* | 89,590* |
| Cedar Rapids, IA.............................................. | 94,170* | 46,340* | 82,960* | 93,390* |
| Des Moines-West Des Moines, IA............................... | 88,990* | 51,860* | 87,240* | 91,480* |
| Kansas City, MO-KS........................................... | 90,330* | 48,220* | 84,710* | 99,780* |
| Wichita, KS................................................... | 92,370* | 43,410* | 72,040* | 86,770* |
| Ann Arbor, MI................................................. | 101,970 | 47,960* | 83,980* | 99,220* |
| Detroit-Warren-Dearborn, MI................................... | 94,820* | 52,810 | 86,370* | 89,180* |
| Grand Rapids-Wyoming, MI..................................... | 75,820* | 47,070* | 76,610* | 81,880* |
| Lansing-East Lansing, MI...................................... | 76,860* | 54,010 | 74,480* | 87,450* |
| Minneapolis-St. Paul-Bloomington, MN-WI................ | 94,050* | 57,670* | 93,150 | 116,740* |
| Fayetteville-Springdale-Rogers, AR-MO .................... | 90,920* | 42,680* | 71,240* | 85,290* |
| St. Louis, MO-IL.............................................. | 100,880* | 49,010* | 92,590 | 105,490* |
| Lincoln, NE................................................... | 76,220* | 43,520* | 65,470* | 81,700* |
| Omaha-Council Bluffs, NE-IA.................................. | 89,020* | 50,790* | 79,470* | 94,640* |
| Fargo, ND-MN ................................................ | 75,930* | 57,730 | 81,330* | 64,360* |
| Akron, OH.................................................... | 84,430* | 45,660* | 85,890* | 102,270* |
| Cincinnati, OH-KY-IN.......................................... | 91,940* | 49,670* | 88,950* | 97,220* |
| Cleveland-Elyria, OH.......................................... | 78,720* | 47,510* | 81,890* | 91,770* |
| Columbus, OH................................................ | 107,770 | 51,980* | 97,930 | 96,170* |
| Dayton, OH................................................... | 96,950* | 46,520* | 90,050 | 101,950* |
| Sioux Falls, SD .............................................. | 79,040* | 39,960* | 72,190* | 88,600* |

Note: See footnotes at end of table.

**Table A. Average (mean) annual wages for selected computer occupations in the United States and selected metropolitan areas in the Midwest, May 2017 - Continued**

| Area | Software developers, applications | Computer user support specialists | Computer systems analysts | Software developers, systems software |
|---|---|---|---|---|
| Green Bay, WI ......................................................... | 72,830* | 50,890* | 85,400* | 87,380* |
| Milwaukee-Waukesha-West Allis, WI .......................... | 90,450* | 52,850 | 79,060* | 90,470* |

Note: An asterisk indicates that the mean annual wage for this area is significantly different from the national average of all areas at the 90-percent confidence level.

## Employment for computer occupations in selected metropolitan areas in the Midwest

Of the 25 selected metropolitan areas in the Midwest, the Chicago-Naperville-Elgin area had a combined employment of 79,820 in the four selected computer occupations. (See table B.) Detroit-Warren-Dearborn had a combined employment of 46,390 and Minneapolis-St. Paul-Bloomington had a combined employment of 45,800 for the four occupations. Employment in these four occupations combined was less than 28,000 in each of the remaining selected metropolitan areas in the Midwest.

**Table B. Employment of selected computer occupations in the United States and selected metropolitan areas in the Midwest, May 2017**

| Area | Software developers, applications | Computer user support specialists | Computer systems analysts | Software developers, systems software |
|---|---|---|---|---|
| United States........................................................... | 849,230 | 613,780 | 581,960 | 394,590 |
| Chicago-Naperville-Elgin, IL-IN-WI ............................ | 24,720 | 21,240 | 20,980 | 12,880 |
| Indianapolis-Carmel-Anderson, IN .............................. | 5,520 | 4,740 | 5,660 | 2,130 |
| Louisville/Jefferson County, KY-IN ............................. | 3,120 | 2,480 | 2,130 | 820 |
| Cedar Rapids, IA ...................................................... | 1,450 | 530 | 810 | 1,120 |
| Des Moines-West Des Moines, IA............................... | 2,840 | 1,330 | 3,370 | 1,230 |
| Kansas City, MO-KS.................................................. | 8,260 | 7,280 | 6,980 | 3,120 |
| Wichita, KS............................................................... | 770 | 1,210 | 600 | 370 |
| Ann Arbor, MI............................................................ | 1,570 | 1,400 | 660 | 1,440 |
| Detroit-Warren-Dearborn, MI....................................... | 17,540 | 9,370 | 12,440 | 7,040 |
| Grand Rapids-Wyoming, MI ........................................ | 1,710 | 2,330 | 980 | 710 |
| Lansing-East Lansing, MI........................................... | 2,350 | 2,040 | 700 | 500 |
| Minneapolis-St. Paul-Bloomington, MN-WI................. | 15,310 | 9,460 | 14,780 | 6,250 |
| Fayetteville-Springdale-Rogers, AR-MO ..................... | 2,410 | 780 | 1,570 | 460 |
| St. Louis, MO-IL ....................................................... | 7,680 | 6,710 | 6,860 | 3,220 |
| Lincoln, NE ............................................................... | 830 | 1,020 | 540 | 720 |
| Omaha-Council Bluffs, NE-IA..................................... | 3,020 | 2,160 | 2,620 | 1,820 |
| Fargo, ND-MN ........................................................... | 600 | 880 | 370 | 470 |
| Akron, OH................................................................. | 2,260 | 1,470 | 1,450 | 240 |
| Cincinnati, OH-KY-IN................................................. | 7,180 | 4,610 | 7,240 | 1,250 |
| Cleveland-Elyria, OH.................................................. | 8,770 | 4,160 | 5,310 | 1,050 |
| Columbus, OH........................................................... | 12,000 | 4,970 | 9,430 | 1,560 |
| Dayton, OH................................................................ | 2,780 | 1,650 | 2,650 | 600 |
| Sioux Falls, SD.......................................................... | 590 | 830 | 520 | 540 |
| Green Bay, WI ........................................................... | 820 | 840 | 780 | 220 |
| Milwaukee-Waukesha-West Allis, WI .......................... | 4,720 | 3,900 | 5,510 | 1,730 |

## Location quotients for computer occupations in selected metropolitan areas in the Midwest

Location quotients (LQs) allow us to explore the occupational make-up of a metropolitan area by comparing the composition of jobs in an area relative to the national average. (See table C.) For example, a LQ of 2.0 indicates that an occupation accounts for twice the share of employment in the area than it does nationally.

**Table C. Location quotients of selected computer occupations in the United States and selected metropolitan areas in the Midwest, May 2017**

| Area | Software developers, applications | Computer user support specialists | Computer systems analysts | Software developers, systems software |
|---|---|---|---|---|
| United States............................................. | 1.0 | 1.0 | 1.0 | 1.0 |
| Chicago-Naperville-Elgin, IL-IN-WI ............................ | 0.9* | 1.1 | 1.1 | 1.0 |
| Indianapolis-Carmel-Anderson, IN .......................... | 0.9 | 1.1 | 1.4* | 0.8* |
| Louisville/Jefferson County, KY-IN ............................ | 0.8* | 0.9 | 0.8 | 0.5* |
| Cedar Rapids, IA ....................................................... | 1.7* | 0.9 | 1.4* | 2.9* |
| Des Moines-West Des Moines, IA............................. | 1.3* | 0.9 | 2.3* | 1.2 |
| Kansas City, MO-KS................................................... | 1.3 | 1.6* | 1.6* | 1.1 |
| Wichita, KS................................................................. | 0.4* | 1.0 | 0.5* | 0.5* |
| Ann Arbor, MI............................................................. | 1.2* | 1.5* | 0.8* | 2.4* |
| Detroit-Warren-Dearborn, MI..................................... | 1.5* | 1.1 | 1.6* | 1.3 |
| Grand Rapids-Wyoming, MI ....................................... | 0.5* | 1.0 | 0.4* | 0.5* |
| Lansing-East Lansing, MI........................................... | 1.8* | 2.2* | 0.8* | 0.8 |
| Minneapolis-St. Paul-Bloomington, MN-WI................ | 1.3* | 1.1* | 1.9* | 1.2 |
| Fayetteville-Springdale-Rogers, AR-MO .................... | 1.7* | 0.8* | 1.6* | 0.7* |
| St. Louis, MO-IL ........................................................ | 1.0 | 1.2* | 1.2* | 0.9* |
| Lincoln, NE ................................................................. | 0.8* | 1.4* | 0.8* | 1.5 |
| Omaha-Council Bluffs, NE-IA..................................... | 1.0 | 1.0 | 1.3* | 1.4* |
| Fargo, ND-MN ............................................................ | 0.7* | 1.5* | 0.7* | 1.2* |
| Akron, OH................................................................... | 1.2 | 1.0 | 1.1 | 0.3* |
| Cincinnati, OH-KY-IN.................................................. | 1.1* | 1.0 | 1.7* | 0.4* |
| Cleveland-Elyria, OH.................................................. | 1.4* | 0.9 | 1.3* | 0.4* |
| Columbus, OH............................................................ | 1.9* | 1.1 | 2.2* | 0.5* |
| Dayton, OH................................................................. | 1.3* | 1.0 | 1.7* | 0.6* |
| Sioux Falls, SD........................................................... | 0.7* | 1.3* | 0.8* | 1.3* |
| Green Bay, WI............................................................ | 0.8 | 1.1 | 1.1 | 0.5* |
| Milwaukee-Waukesha-West Allis, WI ......................... | 0.9 | 1.1 | 1.6* | 0.7* |

Note: An asterisk indicates that the employment share for this area is significantly different from the national average of all areas at the 90-percent confidence level.

Above-average concentrations of employment for three of the selected computer occupations were found in several of the selected metropolitan areas in the Midwest. For example, applications software developers were employed at 1.9 times the national rate in Columbus, Ohio; 1.8 times the national rate in Lansing-East Lansing; and 1.7 times the national rate in both the Cedar Rapids area and the Fayetteville-Springdale-Rogers area. Computer user support specialists were employed at 2.2 times the national rate in the Lansing-East Lansing area and at 1.6 times the national rate in the Kansas City area. Computer systems analysts were employed at 2.3 times the national rate in the Des Moines-West Des Moines area and at 2.2 times the national rate in Columbus, Ohio.

In contrast, 13 of the selected Midwest areas had below-average concentrations of employment for systems software developers. For example, Akron (0.3), Cincinnati (0.4), and Cleveland-Elyria (0.4) all had low LQs for this occupation.

**Wages for applications software developers in selected metropolitan areas in the Midwest**
In 23 metropolitan areas, applications software developers had annual wages that were significantly lower than the U.S. average of $106,710, ranging from $100,880 in the St. Louis area to $72,830 in the Green Bay area.

**Wages for computer user support specialists in selected metropolitan areas in the Midwest**
Computer user support specialists in Minneapolis-St. Paul-Bloomington ($57,670) had annual average wages significantly above the U.S. average of $54,150. Nineteen metropolitan areas had wages that were measurably lower than the national average, ranging from $51,980 in the Columbus, Ohio, area to $39,960 in the Sioux Falls area. Computer user support specialists in the remaining areas earned wages that were not significantly different from the national average.

**Wages for computer systems analysts in selected metropolitan areas in the Midwest**
Computer systems analysts in 21 metropolitan areas had annual wages that were significantly below the national average of $92,740. Wages in these areas ranged from $90,340 in the Chicago-Naperville-Elgin area to $65,470 in the Lincoln area. Computer systems analysts in the remaining four areas had wages that were not measurably different from the national average for this occupation.

**Wages for systems software developers in selected metropolitan areas in the Midwest**
One area, Minneapolis-St. Paul-Bloomington ($116,740), had annual average wages significantly above the national average of $111,780 for systems software developers. Twenty-four metropolitan areas had annual wages that were significantly lower than the U.S. average, ranging from $107,710 in the Chicago-Naperville-Elgin area to $64,360 in the Fargo area.

These statistics are from the Occupational Employment Statistics (OES) survey, a federal-state cooperative program between BLS and State Workforce Agencies.

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### Note on Occupational Employment Statistics

A value that is statistically different from another does not necessarily mean that the difference has economic or practical significance. Statistical significance is concerned with the ability to make confident statements about a universe based on a sample. It is entirely possible that a large difference between two values is not significantly different statistically, while a small difference is, since both the size and heterogeneity of the sample affect the relative error of the data being tested.

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### Technical Note

The Occupational Employment Statistics (OES) survey is a semiannual survey measuring occupational employment and wage rates for wage and salary workers in nonfarm establishments in the United States. The OES data available from BLS include cross-industry occupational employment and wage estimates for the nation; over 650 areas, including states and the District of Columbia, metropolitan statistical areas (MSAs), metropolitan divisions, nonmetropolitan areas, and territories; national industry-specific estimates at the NAICS sector, 3-, 4-, and selected 5- and 6-digit industry levels; and national estimates by ownership across all industries and for schools and hospitals. OES data are available at www.bls.gov/oes/tables.htm.

OES estimates are constructed from a sample of about 1.2 million establishments. Each year, two semiannual panels of approximately 200,000 sampled establishments are contacted, one panel in May and the other in November. Responses are obtained by mail, Internet or other electronic means, email, telephone, or personal visit. The May 2017 estimates are based on responses from six semiannual panels collected over a 3-year period: May 2017, November 2016, May 2016, November 2015, May 2015, and November 2014. The overall national response rate for the six panels, based on the 50 states and the District of Columbia, is 72 percent

based on establishments and 68 percent based on weighted sampled employment. The unweighted employment of sampled establishments across all six semiannual panels represents approximately 58 percent of total national employment. For more information about OES concepts and methodology, go to www.bls.gov/oes/current/oes_tec.htm.

The May 2017 OES estimates are based on the 2010 Standard Occupational Classification (SOC) system and the 2017 North American Industry Classification System (NAICS). Information about the 2010 SOC is available on the BLS website at www.bls.gov/soc and information about the 2017 NAICS is available at www.bls.gov/bls/naics.htm.

**Metropolitan area definitions**

The substate area data published in this release reflect the standards and definitions established by the U.S. Office of Management and Budget.

- **Chicago-Naperville-Elgin, Ill.-Ind.-Wis. Metropolitan Statistical Area (MSA)** includes the following:
    - **Chicago-Naperville-Arlington Heights, Ill. Metropolitan Division (MD)** includes Cook, DuPage, Grund Kendall, McHenry, and Will Counties in Illinois.
    - **Elgin, Ill. MD** includes DeKalb and Kane Counties in Illinois.
    - **Gary, Ind. MD** includes Jasper, Lake, Newton, and Porter Counties in Indiana.
    - **Lake County-Kenosha County, Ill.-Wis. MD** includes Lake County in Illinois and Kenosha County in Wisconsin.
- **Indianapolis-Carmel-Anderson, Ind. MSA** includes Boone, Brown, Hamilton, Hancock, Hendricks, Johnson, Madison, Marion, Morgan, Putnam, and Shelby Counties in Indiana.
- **Louisville/Jefferson County, Ky.-Ind. MSA** includes Bullitt, Henry, Jefferson, Oldham, Shelby, Spencer, and Trimble Counties in Kentucky; and Clark, Floyd, Harrison, Scott, and Washington Counties in Indiana.
- **Cedar Rapids, Iowa MSA** includes Benton, Jones, and Linn Counties in Iowa.
- **Des Moines-West Des Moines, Iowa MSA** includes Dallas, Guthrie, Madison, Polk, and Warren Counties in Iowa.
- **Kansas City, Mo.-Kan. MSA** includes Bates, Caldwell, Cass, Clay, Clinton, Jackson, Lafayette, Platte, and Ray Counties in Missouri; and Johnson, Leavenworth, Linn, Miami, and Wyandotte Counties in Kansas.
- **Wichita, Kan. MSA** includes Butler, Harvey, Kingman, Sedgwick, and Sumner Counties in Kansas.
- **Ann Arbor, Mich. MSA** includes Washtenaw County in Michigan.
- **Detroit-Warren-Dearborn, Mich. MSA** includes the following:
    - **Detroit-Dearborn-Livonia, Mich. MD** includes Wayne County in Michigan.
    - **Warren-Troy-Farmington Hills, Mich. MD** includes Lapeer, Livingston, Macomb, Oakland and St. Clair Counties in Michigan.
- **Grand Rapids-Wyoming, Mich. MSA** includes Barry, Kent, Montcalm, and Ottawa Counties in Michigan.
- **Lansing-East Lansing, Mich. MSA** includes Clinton, Eaton, and Ingham Counties in Michigan.
- **Minneapolis-St. Paul-Bloomington, Minn.-Wis. MSA** includes Anoka, Carver, Chisago, Dakota, Hennepin, Isanti, Le Sueur, Mille Lacs, Ramsey, Scott, Sherburne, Sibley, Washington, and Wright Counties in Minnesota; and Pierce and St. Croix Counties in Wisconsin.
- **Fayetteville-Springdale-Rogers, Ark.-Mo. MSA** includes Benton, Madison, and Washington Counties in Arkansas; and McDonald County in Missouri.
- **St. Louis, Mo.-Ill. MSA** includes Franklin, Jefferson, Lincoln, St. Charles, St. Louis, and Warren Counties and St. Louis city in Missouri; and Bond, Calhoun, Clinton, Jersey, Macoupin, Madison, Monroe, and St. Clair Counties in Illinois.
- **Lincoln, Neb. MSA** includes Lancaster and Seward Counties in Nebraska.

- **Omaha-Council Bluffs, Neb.-Iowa MSA** includes Cass, Douglas, Sarpy, Saunders, and Washington Counties in Nebraska; and Harrison, Mills, and Pottawattamie Counties in Iowa.
- **Fargo, N.D.-Minn. MSA** includes Cass County in North Dakota and Clay County in Minnesota.
- **Akron, Ohio MSA** includes Portage and Summit Counties in Ohio.
- **Cincinnati, Ohio-Ky.-Ind. MSA** includes Dearborn, Ohio, and Union Counties in Indiana; Boone, Bracken, Campbell, Gallatin, Grant, Kenton, and Pendleton Counties in Kentucky; and Brown, Butler, Clermont, Hamilton, and Warren Counties in Ohio.
- **Cleveland-Elyria, Ohio MSA** includes Cuyahoga, Geauga, Lake, Lorain, and Medina Counties in Ohio.
- **Columbus, Ohio MSA** includes Delaware, Fairfield, Franklin, Hocking, Licking, Madison, Morrow, Perry, Pickaway, and Union Counties in Ohio.
- **Dayton, Ohio MSA** includes Greene, Miami, and Montgomery Counties in Ohio.
- **Sioux Falls, S.D. MSA** includes Lincoln, McCook, Minnehaha, and Turner Counties in South Dakota.
- **Green Bay, Wis. MSA** includes Brown, Kewaunee, and Oconto Counties in Wisconsin.
- **Milwaukee-Waukesha-West Allis, Wis. MSA** includes Milwaukee, Ozaukee, Washington, and Waukesha Counties in Wisconsin.

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